

Always Something Else

- Levels of experiencing colour and light

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ABSTRACT

This paper springs from a project about concept formation in the field of colour and light, and presents a graphic model describing possible constituent relations between colour and light experiences. A deeper understanding of colour and light experiences calls for a coherent and well-defined structure that can be used to describe connections and distinctions between experiences of different kinds. This also can contribute to understanding of how colour and light concepts are related to each other. We experience the world holistically. Our experiences of colour, light and space have many aspects. Their relations to different levels of experience always have to be considered.

1. BACKGROUND

Meaningful experiences of the world are parts of a coherent whole. We *see* colour and light, but what we so vividly, *experience* is a coherent spatial world full of life and meanings. There is a tight perceptual attunement between us and our environment. The experienced world is in ecological balance with the world around. Hardin (1993:xii) concludes that there is no “reason to think that there is a set of external physical properties that is the analog of the fourfold structure of the colors that we experience”

When perceiving colours our vision does not recognize the absolute intensity or the absolute spectral distribution of radiation that reaches our retina. Valberg (2005:286) states that, instead, *distinctions* and *relations* are registered. In this sense you could say that colour and light experiences are natural but non-physical.

Our visual system is developed for a continuous spectrum of light and gradual changes between different illuminations, and under these circumstances we perceive colours as more or less constant. Our visual sense adapts to current light conditions: What we perceive as white in a given illumination functions as a perceptual “anchor” for perception of lightness (Gilchrist et al. 1999) and hue (Klarén and Fridell Anter 2011).

Even if we experience that an object has almost the same colour in different lights, we can at the same time perceive a slight tone of colour that reveals the character of the light. For nominally achromatic surfaces this effect is more obvious than for nominally chromatic surfaces. We may experience that a surface is white, but we feel at the same time that it is illuminated with a light of a special colour and intensity.

Merleau-Ponty (2002:355) discusses how we experience the surrounding world in different ways depending on situation. He makes a distinction between two *modes of attention*: the *reflective attitude* and *living perception*. This distinction is significant to our perception of colour and light. In living perception colours are manifested to us in the totality of spatial relations. Depending on modes of attention, a nominally white wall lit by ‘warm’ sunlight can

be seen (with a reflective attitude) as slightly yellowish or (with living perception) as the “proper” or “real” colour of the wall experienced beyond the perceived colour. We suggest that this spontaneous colour experience is called *constancy colour* (Klarén 2012:24).

All these colour and light interactions are what makes us perceive space visually. Normally we have no difficulties in making distinctions between what is caused by the light and what by the qualities of surfaces. The logically distributed colour variations caused by light, reflections and shadings are to our intuition natural and indispensable spatial qualities.

In addition to the basic perceptual processes and the direct understanding of the world around, human comprehensive experience of colour and light is also dependent of culture. Imaginations, conceptions and ideas *about* the world provide a context to our sense experiences. Noë (2004:1–3) remarks that adaptation is not limited to basic physiological reactions. It is both perceptual and cognitive and derives its origin from multiple sources, external as well as internal. Human experience of colour and light in space is made up from interplay of the individual and the world on many levels.

2. LEVELS OF EXPERIENCE

The human experience of colour and light is multidimensional and dynamic. Its totality cannot be easily described. Instead a deeper understanding of colour and light experiences calls for a coherent and well-defined structure that can be used to describe connections and distinctions between different levels of experience. This can also contribute to understanding of how colour and light concepts are related to each other.

Figure 1 shows levels of experience - from experiences based on *categorical* – basic – *perception* through *direct experience* of the world around to the *indirect experience* imbedded in cultural expressions.

2.1 Categorical perception

The *categorical perception* gives basic spatial and temporal structure to experience of the surrounding reality. It embraces the basic perception of colour, light and space; colour distinctions and colour similarities, perception of contours and contrasts, balance, verticality and horizontality, movement, etc. The ultimate purpose of categorical perception is to build a comprehensive mental image of the human world: “A reality without well-defined borders is divided up into distinct units by our perceptual mechanism” (Peter Gärdenfors 2000:20. My transl.). By natural selection man has been endowed certain perceptive and cognitive tools for survival and this is basically common for us all. Categorical perception is in some respects determined genetically, but for the most part acquired in early life.

2.2 Direct experience

By direct experiences we gradually learn through living how to recognize and understand colour and light in the world around. Making use of natural perceptual abilities and interplaying with the physical world humans (and other living creatures) develop perceptual skills; we can intuitively catch the spatial significance of colour and light and the emotional content of spatial situations. Direct experience is dynamic, comprehensive and spontaneous; perceptions, feelings and emotions form a coherent whole.

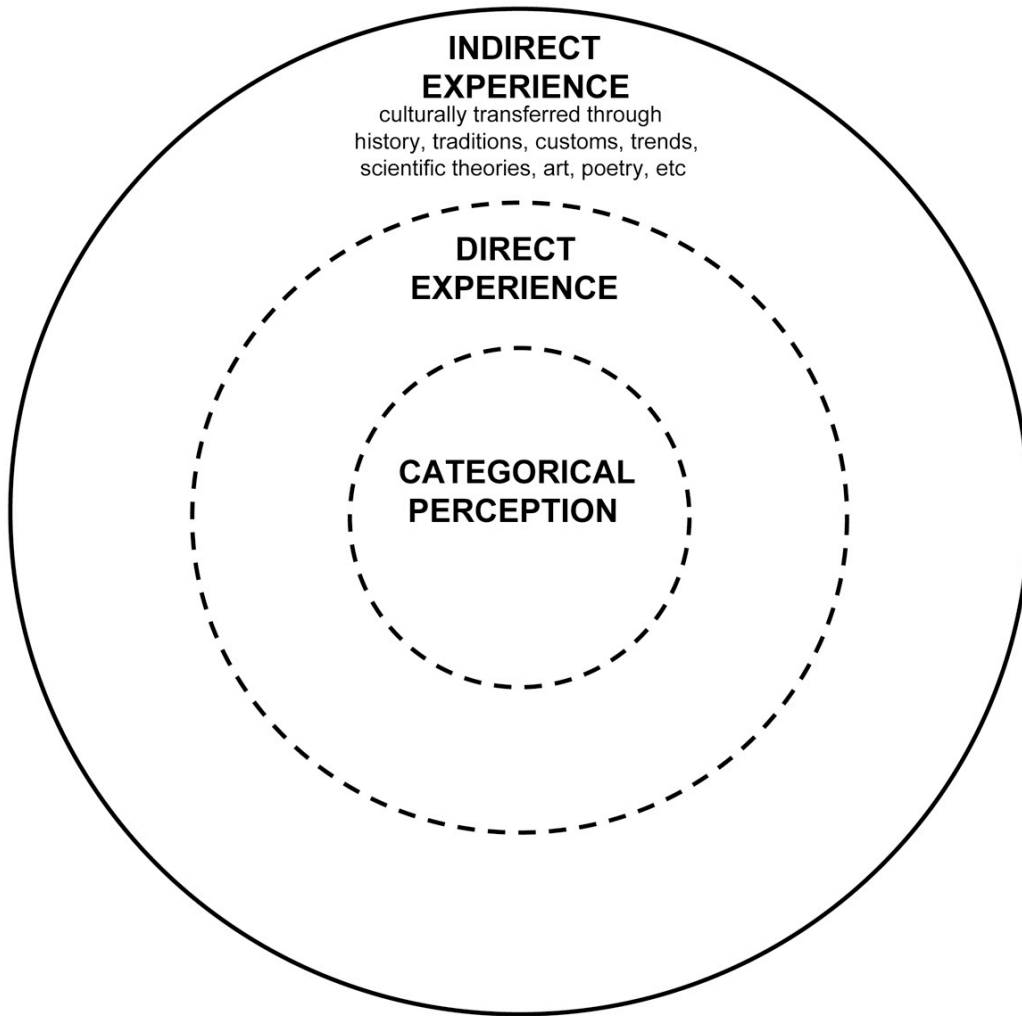


Figure 1. Experience levels (Model by Ulf Klarén)

2.3 Indirect experience

The outer circle embraces concepts and models that help to understand or give perspective to the experienced phenomena in the two inner circles. Indirect experience imbedded in cultural expressions – history, traditions, customs, trends, scientific theories, art, poetry, etc. – form a cultural context that all experiences of necessity are related to. History, scientific theories and theoretical models provide a basis of explanation and analyses, traditions and customs serve as guiding rules, art and design, literature and poetry summarize common experiences; art and design with expressive symbols and appearance of space, literature and poetry with symbols of language.

The cultural and social contents can change and be reinterpreted, but can never totally be taken in or controlled by the individual. It is implicitly present in all perceptions. Abstract figures or words can be associated with symbolic meanings; a colour combination, a special light or a space – as well as many other visual phenomena – may be associated to concepts or feelings. Thus indirect experiences can provide meanings and feelings to phenomena based on direct experiences and categorical perception. Cultural colour and light symbols are, however, basically social understandings. They are arbitrary and can be changed or replaced. Cultural symbols may not be mistaken for the intuitive and emotional content of direct experience.

Indirect experience can relate in different ways to phenomena described in the two inner circles. Concepts used for specifying spatial light situations or perceptual light qualities and concepts used in perceptual colour theory aim to describe a *direct* experience. Likewise a painting describing a special light and colour experience can serve as a concrete artistic ‘model’ for how we can attend to light and colour in the real world. On the other hand, concepts that describe the outer world in abstract terms based on physical analyses with quantitative *measurements* and *instrumental methods* have an *indirect* relation to experienced phenomena.

The three experience levels are mutually dependant and implicitly present in all perceptions. A perceived distinction between a red colour and other colours is a basic – categorical – perception. The experience of the colour of a wall – whether in light or shadow – is a direct experience of the world around. The knowledge that red has a special position in a colour system, or that red surfaces absorb electromagnetic radiation in a special way, or that red houses may be of high social importance, is based on indirect experience.

3. CONCLUSION

Colour and light are, indeed, “always something else”, but our experience is not without structure or laws and there are certainly many concepts describing human experience. One could even say that there are too many – and disparate – concepts to be useful in communication. What is emphasized here, however, is the lack of a coherent and well-defined structure of content. The experience of colour and light has many aspects, and their relations to different levels of experience must always be considered. If colour phenomena are abstracted from their natural connections to light, spatial order and cultural context the causal relations behind them become inconceivable and mystified. Without a comprehensive structure of content it is not possible to see how different kinds experiences – and concepts – are related to each other, or in what respect they refer to different aspects of reality.

REFERENCES

- Gilchrist, A., C. Kyssofidis, F. Benato, T. Agostini, J. Cataliotti, X. Li, B. Spehar, V. Annan and E. Economou (1999). An Anchoring Theory of Lightness Perception. In *Psychological Review* 1999, Vol. 106, no. 4, 795-834.
- Hardin, C. L. (1993). *Color for philosophers: unweaving the rainbow*. Indianapolis: Hackett Publ. Company.
- Gärdenfors, P. (2000). *Hur homo blev sapiens*. Nora: Nya Doxa
- Klarén, U. (2012). Natural Experiences and Physical Abstractions – On epistemology of colour and light. In *Colour and Light – Concepts and Confusion*. Ed. by Harald Arnkil. Helsinki: Aalto University. Also available online on <http://books.aalto.fi>
- Klarén, U. and K. Fridell Anter (2011). Colour and light in space: Dynamic adaptation and spatial understanding. In *Proceedings of the Midterm Meeting of the International Colour Association, Zürich, 2011*, ed. by Verena M. Schindler and Stephan Cuber (www.aic-colour.org)
- Merleau-Ponty, M. (2002 [1962]). *The Phenomenology of Perception*. London, N.Y.: Routledge.
- Noë, A. (2004). *Action in Perception*. The MIT Press, Cambridge.
- Valberg, A. (2005). *Light Vision Color*. Chichester: John Wiley & Sons.

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